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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,259	12/13/2005	Uwe Zimmermann	10191/3700	3297

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EXAMINER

ROGERS, DAVID A

ART UNIT	PAPER NUMBER
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2856

DATE MAILED: 09/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/538,259	ZIMMERMANN ET AL.	
	Examiner	Art Unit	
	David A. Rogers	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-17 is/are rejected.
- 7) ☒ Claim(s) 18 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 June 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/9/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure. The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The disclosure is objected to because of the following informalities:

a. The specification states that an object is identified (triangulated) when it is detected by at least two sensors. The specification then states that "only objects detected by sensors S1, S3 as well as by sensor S3 are viewed as relevant targets." However, the abstract states that an object is identified as relevant when it is detected by at least two sensors S1, S2, S3. This statement in the abstract appears to be in error since the specification makes it clear that two sensors are required for triangulation, and three sensors are required for determining relevance. The applicant is requested to update the abstract to be consistent with the specification (that three sensors are required for determining relevance).

b. On page 4 (line 5) it is not understood what is meant by the phrase "namely generated".

Appropriate correction is required.

Drawings

4. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 8-19 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for determining an object's relevance using three sensors, does not reasonably provide enablement for determining an object's relevance using two sensors. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. The specification states that an object is identified (triangulated) when it is detected

by at least two sensors. The specification then states that “only objects detected by sensors S1, S3 as well as by sensor S3 are viewed as relevant targets.” Independent claims 8 and 9 must be amended to include that an object’s relevance is determined when it is detected by three sensors.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 8 and 9 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by United States Patent 6,055,042 to Sarangapani.

Sarangapani discloses a method and apparatus for detecting objects. The apparatus comprises at least three sensors, at least two of which are near-field sensors having near-field scanning range (reference item 408) and at least one of which is a far-field sensor with a far-field scanning range (reference item 406). As seen in figures 4 and 5 the far-field scanning range overlaps only partially with the near-field scanning ranges. Data from the near- and far-field sensors are used to determine the location, size, and orientation of an object. Data from the sensors are weighted. Therefore, the determined relevance of an object is based on at least two or even three sensors.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sarangapani as applied to claim 9, and further in view of the applicant's admitted prior art and United States Patent 6,664,918 to Paradie *et al.*

Sarangapani teaches a vehicle-based object detecting system as generally seen in figure 4. The sensing angle of each of the outer sensing ranges (reference item 408) or the inner sensing range (reference item 406) appears to be within the claimed range of $\pm 50^\circ$ to $\pm 60^\circ$. However, Sarangapani does not expressly or implicitly describe the sensing angles.

The applicant admits that known sensors used in vehicle-based object detecting systems have a sensing angle of about $\pm 55^\circ$. See page 1 (lines 15 and 16). Furthermore, Paradie *et al.* teaches that known sensors for vehicle-based object detecting systems can have a azimuth of 180° or less; i.e., a sensing angle of between 0° to $\pm 90^\circ$. See column 2 (lines 66 and 67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Sarangapani with the teachings of the admitted prior art and Paradie *et al.* in order to provide sensors for a

vehicle-based object detecting system that have a sensing angle of between $\pm 55^\circ$ to $\pm 60^\circ$. See MPEP §2144.05:

In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990) (The prior art taught carbon monoxide concentrations of "about 1-5%" while the claim was limited to "more than 5%." The court held that "about 1-5%" allowed for concentrations slightly above 5% thus the ranges overlapped.); *In re Geisler*, 116 F.3d 1465, 1469-71, 43 USPQ2d 1362, 1365-66 (Fed. Cir. 1997) (Claim reciting thickness of a protective layer as falling within a range of "50 to 100 Angstroms" considered *prima facie* obvious in view of prior art reference teaching that "for suitable protection, the thickness of the protective layer should be not less than about 10 nm [i.e., 100 Angstroms].")

The selection of a preferred scanning angle would have been obvious in order to obtain the proper scanning coverage of the road in front of the vehicle.

11. Claims 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sarangapani as applied to claim 9 above, and further in view of United States Patent 6,853,908 to Andersson *et al.*

Sarangapani teaches a vehicle-based object detecting system as generally seen in figure 4. It is described and shown figures 3 and 4 that it is desired to exclude from the third sensor (having sensing range shown as reference item 306 or 406) that anything outside of the width of the road; i.e., traveling lane, should be excluded.

Andersson *et al.* teaches a vehicle-based object detection system. The object detection devices include radar, laser, and cameras. Furthermore, Andersson *et al.* teaches that cameras, for example, can be zoomed in order to obtain a useful image. The zooming of a camera increases or decreases the

maximum scanning angle (depending on if the camera is being zoomed closer or farther away from an area). Also, Andersson *et al.* teaches

For example, if the on-board map database information indicates that the vehicle is approaching a curve, the attention plan could be generated for adjusting for example the direction and scanning area of the relevant detection devices so as to follow the curvature of the road. . Also, an upcoming vertical variation of the road such as a hill or drop in the road could result in vertical adjustment of the detection devices. A change in width of the road might also induce a change in the desired scanning area of the devices, as controlled by the attention plan. Further, if the road is changing to be a divided road with a median, the attention of the detection devices could be concentrated to the vehicle's side of the median, since vehicles on the other side of the median are not likely to be collision risks.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Sarangapani with the teachings of Andersson *et al.* in order to provide a sensor whose sensing angle is changeable to the width of a road. Doing so would allow the sensor to be adapted in order to ensure that extraneous objects outside of the road can be eliminated from detection.

With regard to claims 13 and 16 the changing of the sensing angle would more than likely be done automatically since the vehicle is moving. However, manually changing the sensing angle would have been obvious if, for example, it is known *a priori* that the vehicle of Sarangapani was going to be used in a different road than previously traveled.

With regard to claims 14 and 17 Andersson *et al.* teaches that the system utilizes a map database. Furthermore, Andersson *et al.* states:

According to the invention, the above object is achieved by a system comprising a computing device using information regarding the current or upcoming road situation from

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a map database as input for computing an attention plan for optimising the use of the at least one detection device in the object detection system, said attention plan being outputted to the object detection system for control of said detection device.

The map database could provide road section attributes relevant for the control of the operating device. Attributes describing, for example, road geometry (curves and vertical curvature), lanes, intersection geometry, road signs etc are used for assessments of which traffic environment objects are most likely to appear

Clearly from Andersson *et al.* the map database is analogous to a “navigation system” and that changes in sensor angle to accommodate road changes would be based on this “navigation system.”


Allowable Subject Matter

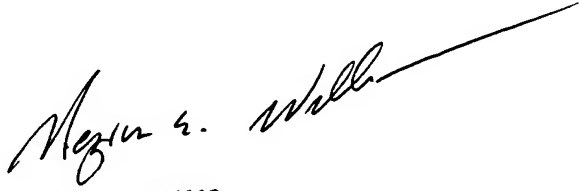
12. Claims 18 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Rogers whose telephone number is (571) 272-2205. The examiner can normally be reached on Monday - Friday (0730 - 1600). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E. Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

14. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


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06 September 2006


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